i2 MX USER'S MANUAL

TABLE OF CONTENTS

SECTION 1 i2 MX PART IDENTIFICATION

SECTION 2 i2 MX RECEIVER AND ITA ENGAGEMENT AND DISENGAGEMENT

SECTION 3 i2 MX RECEIVER MOUNTING

SECTION 4 i2 MX ITA BACKSHELL REMOVAL

SECTION 5 i2 MX ITA CABLE ASSEMBLY AND BACKSHELL INSTALLATION INSTRUCTIONS

SECTION 6 i2 MX CONTACT REMOVAL

SECTION 7 i2 MX MODULE INSERT(S) INSTALLATION/REMOVAL INSTRUCTIONS

SECTION 8 i2 MX ACCESSORIES

SECTION 9 TROUBLESHOOTING

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i2 MX RECEIVER PART IDENTIFICATION

PART # 310 130 XXX

Figure B points out distinguishing features of the i2 MX receiver so that the top and bottom can be identified. Features to look for are the numeric keying receptacle at the top and the alpha keying receptacle on the bottom.

When holding the i2 MX receiver, the top can be determined when the letters and numbers are oriented as shown in **Figure B**. The top position is designated by a black marking around the upper slot in Tier A and Tier B module locations (**Figure B**).

The front and rear of the i2 MX receiver are shown in **Figure C**. The front has a polarizing feature which prevents the ITA and receiver from being engaged in the incorrect orientation. The front of the i2 MX receiver can be identified as the side with the latching feature (**Figure A**).

Figure D shows the rear silkscreen that aides in indicating positions.

The front side mates with the i2 MX ITA. Wires exit the i2 MX receiver from the rear side.

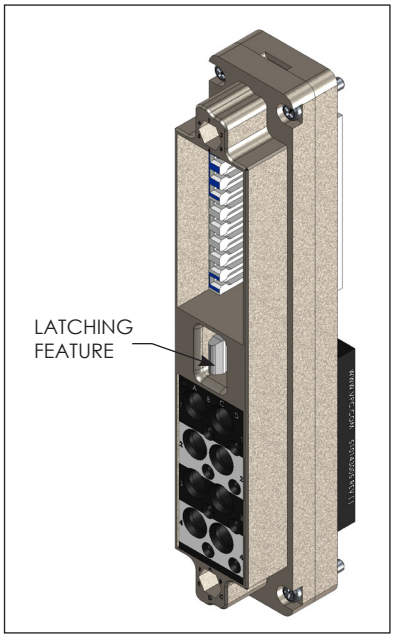

Figure A. i2 MX receiver.

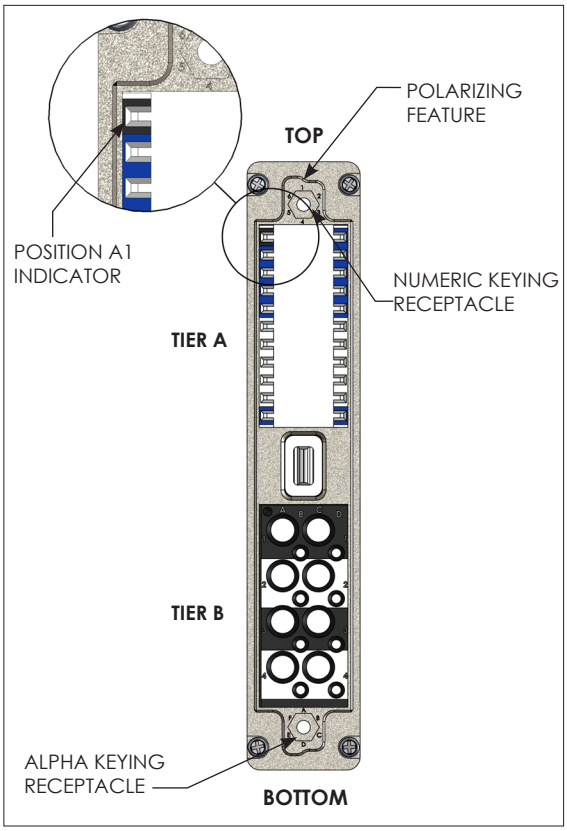

Figure B. i2 MX receiver front view.

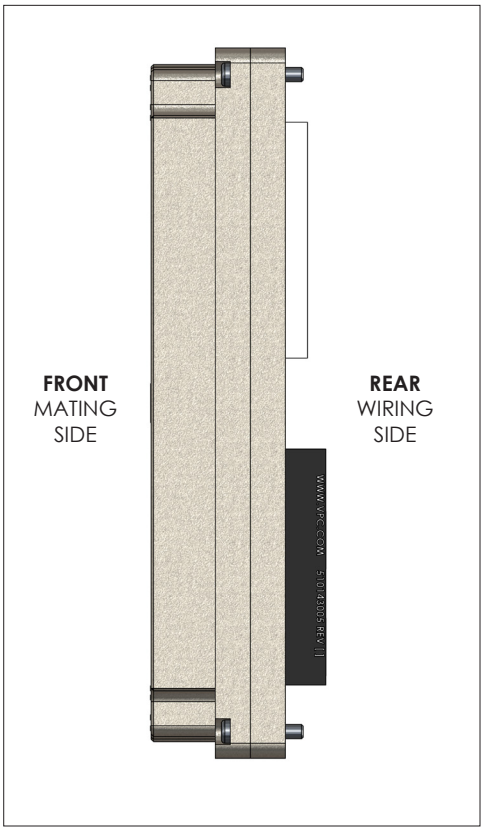

Figure C. i2 MX receiver side view.

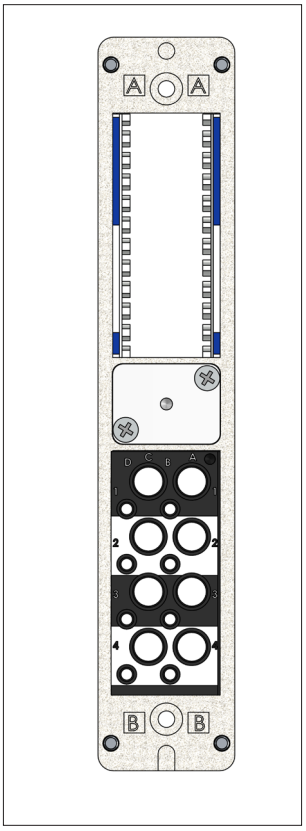

Figure D. i2 MX receiver rear view.

i2 MX ITA PART IDENTIFICATION

PART # 410 130 XXX

Figure B points out distinguishing features of the i2 MX ITA so that the top and bottom can be identified. Features to look for are the numeric keying receptacle at the top and the alpha keying receptacle on the bottom.

When holding the i2 MX ITA, the top can be determined when the letters and numbers are readable. The top position is designated by a black marking around the upper slot in Tier A and Tier B module locations (**Figure B**).

The front and rear of the i2 MX ITA are easily distinguished as shown in **Figure C**. The front has a protruding guide plate with locking tabs (**Figure A**) and the rear has the knob.

Figure D shows the rear silkscreen that aides in indicating positions.

The front side mates with the i2 MX receiver. The front has a polarizing feature which prevents the ITA and receiver from being engaged in the incorrect orientation. Wires exit the i2 MX ITA through the 30° cable exit (**Figure C**).

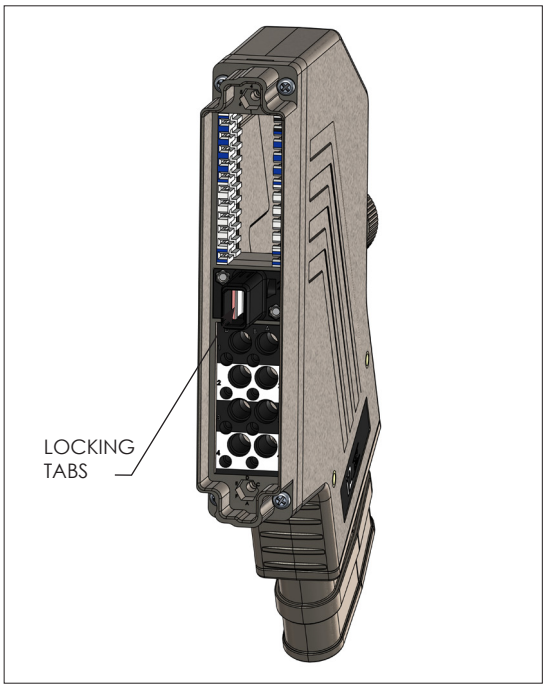

Figure A. i2 MX ITA.

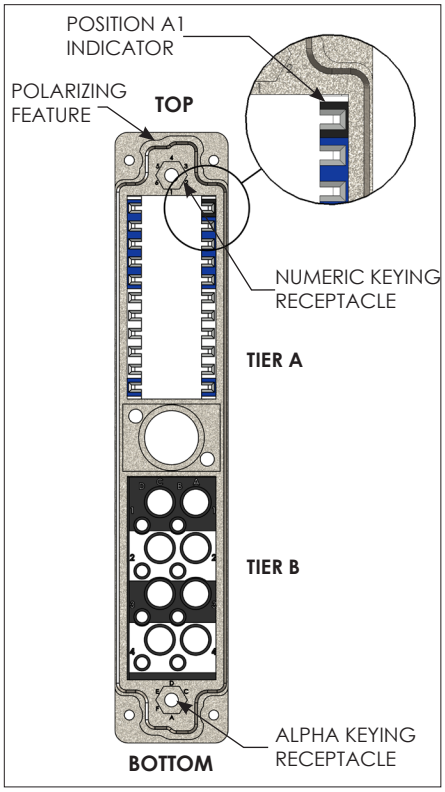

Figure B. i2 MX ITA front view.

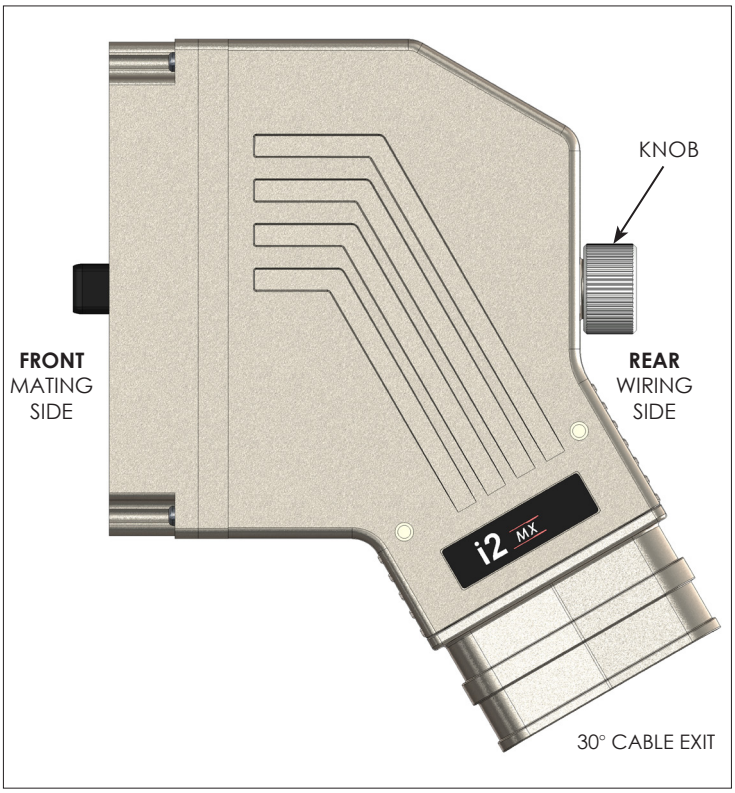

Figure C. i2 MX ITA side view.

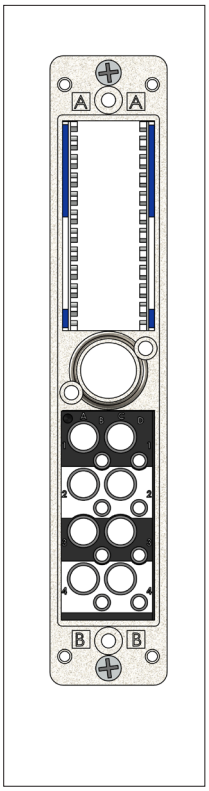

Figure D. i2 MX ITA rear view.

i2 MX RECEIVER AND ITA ENGAGEMENT AND DISENGAGEMENT

RECEIVER • PART # 310 130 XXX

ITA • PART # 410 130 XXX

ENGAGEMENT INSTRUCTIONS

1. Rotate the knob counter-clockwise to the open, disengaged position.

2. Align the ITA with the receiver and push the ITA onto the receiver. There will be about a 0.25" [6.35 mm] gap (**Figure A**).

NOTE: The i2 MX connector is polarized; the ITA will not align if it is upside down.

NOTE: The i2 MX ITA can be left in this position without engaging the system.

3. Rotate the knob clockwise to engage (**Figure B**).

NOTE: For optimum performance and system longevity, distribute the contact load evenly.

DISENGAGEMENT INSTRUCTIONS

1. Turn the engagement knob counter-clockwise to the open, disengaged position (**Figure A**).

2. Pull ITA straight back and remove.

NOTE: For unbalanced load, add force to the lower pin load during disengagement to prevent binding.

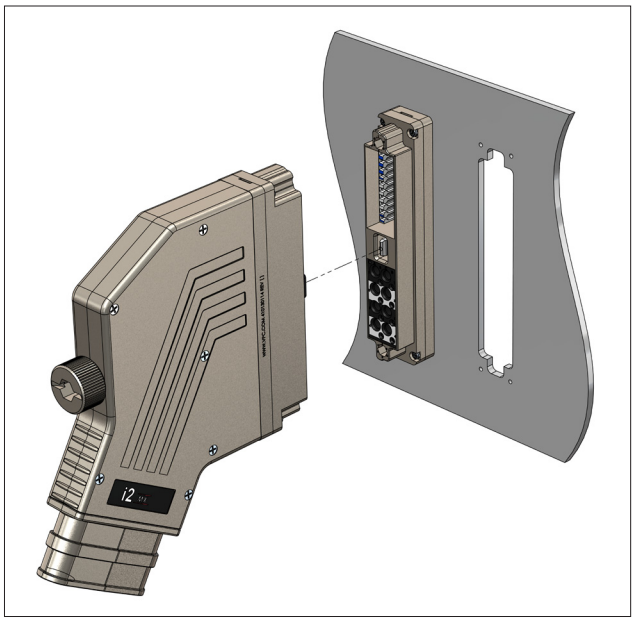

Figure A. Disengaged i2 MX ITA and receiver.

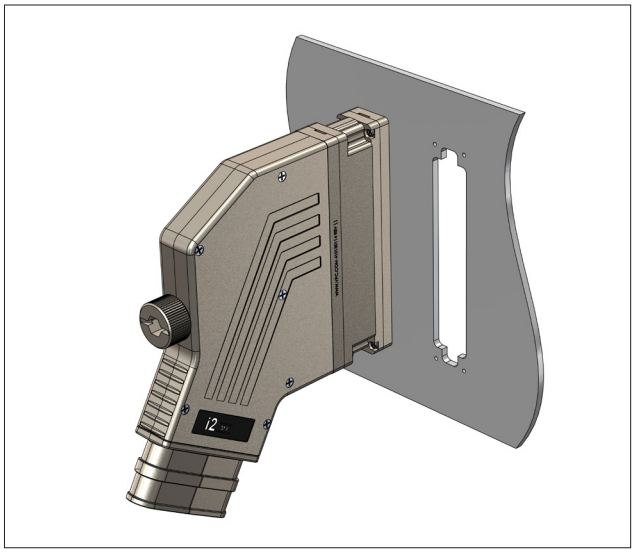

Figure B. Engaged i2 MX ITA and receiver.

i2 MX RECEIVER MOUNTING

PART # 310 130 XXX

TOOLS REQUIRED
Phillips Head Screwdriver

MOUNTING INSTRUCTIONS

1. Prepare the mounting surface using the dimensions provided in **Figure A.**

2. Attach the i2 MX receiver to the panel with the provided 2-56 Phillips head captive screws (**Figure B**). Torque screws to 2 in-lbs [0.23 Nm].

⚠5 *NOTE: The dimensions shown reflect using a laser cutting or punch press process. If using conventional machining processes the 3.49" [88.65 mm] dimension will be 3.69" [93.73 mm] and a .09" [2.29 mm] radius needs to be added to the corners.*

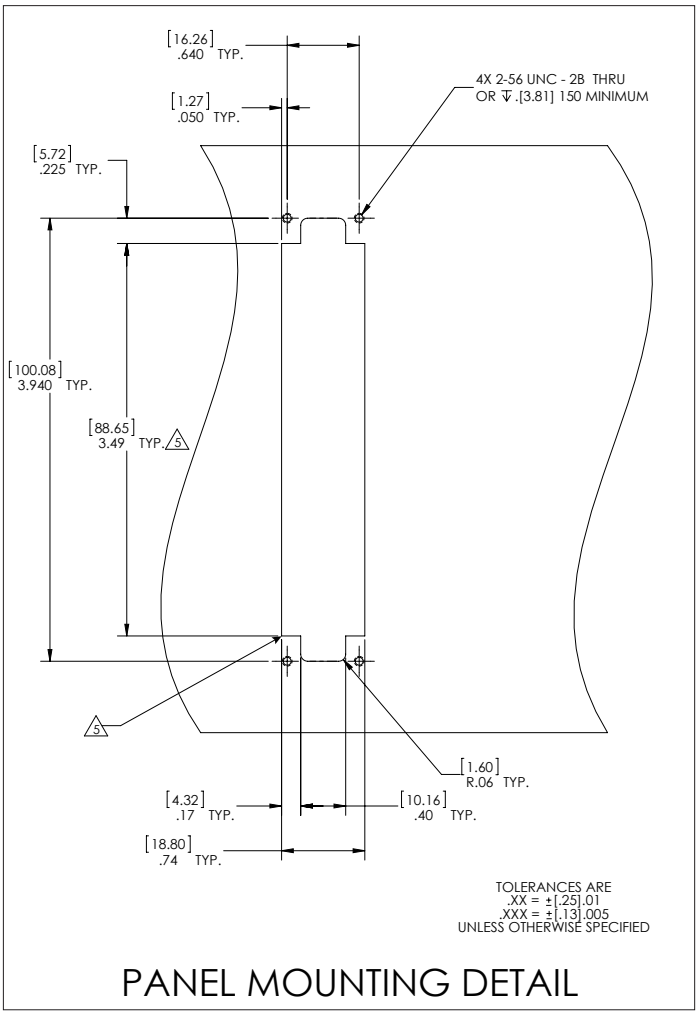

Figure A. Recommended panel cutout.

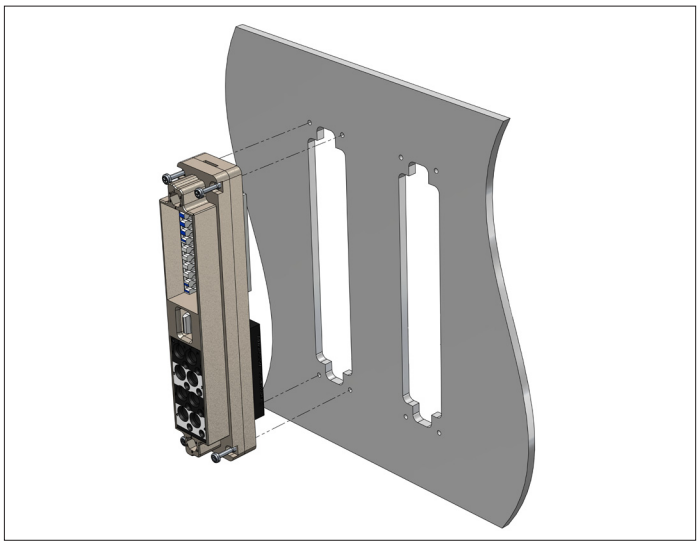

Figure B. Using the provided 2-56 Phillips head captive screws, attach the i2 MX receiver to the panel.

i2 MX ITA BACKSHELL REMOVAL

PART # 410 130 XXX

TOOLS REQUIRED
Phillips Head Screwdriver
Flat Head Screwdriver
1/4" Nut Driver, hollow shaft

COVER REMOVAL INSTRUCTIONS

1. Disengage the ITA from the receiver.

2. Using a flat head screwdriver, remove the engagement knob screw and engagement knob (**Figure A**).

3. Using a Philips head screwdriver, loosen the four screws (captive) that secure the backshell to the ITA frame (**Figure B**).

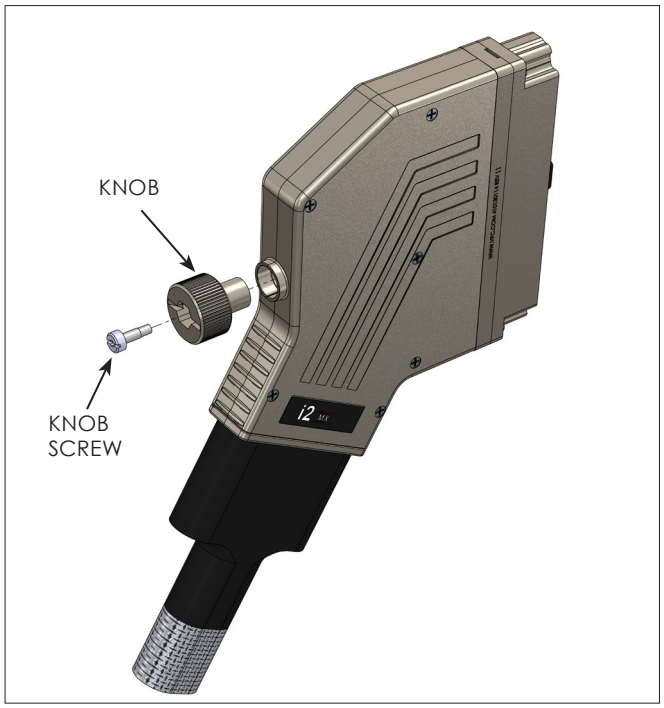

Figure A. i2 MX knob removal.

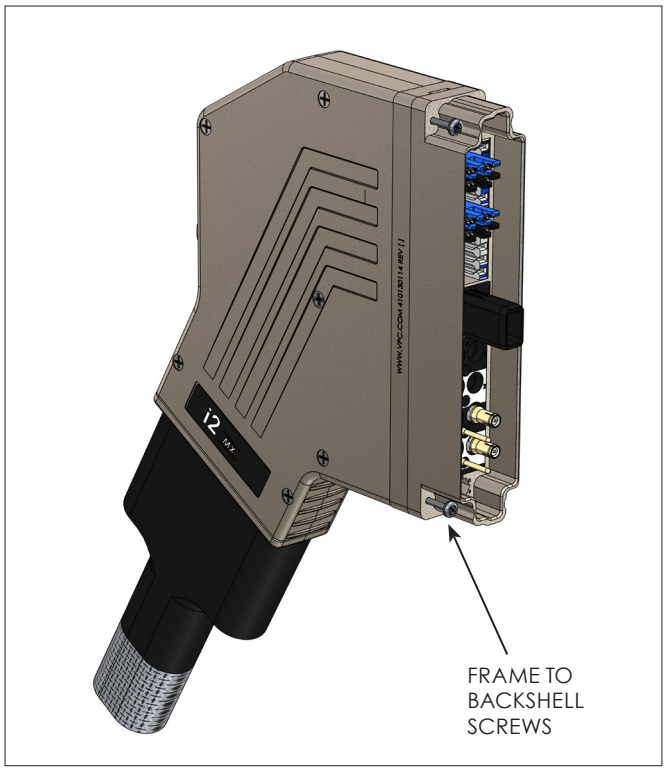

Figure B. i2 MX backshell screws removal.

i2 MX ITA BACKSHELL REMOVAL

PART # 410 130 XXX

COVER REMOVAL INSTRUCTIONS (CONTINUED)

4. Using a Phillips head screwdriver, loosen the six screws (captive) that secure the backshell halves. Remove the half with the screws (**Figure C**).

5. Using a nut driver, remove nuts on the strain relief clamp, then remove the clamp (**Figure D**).

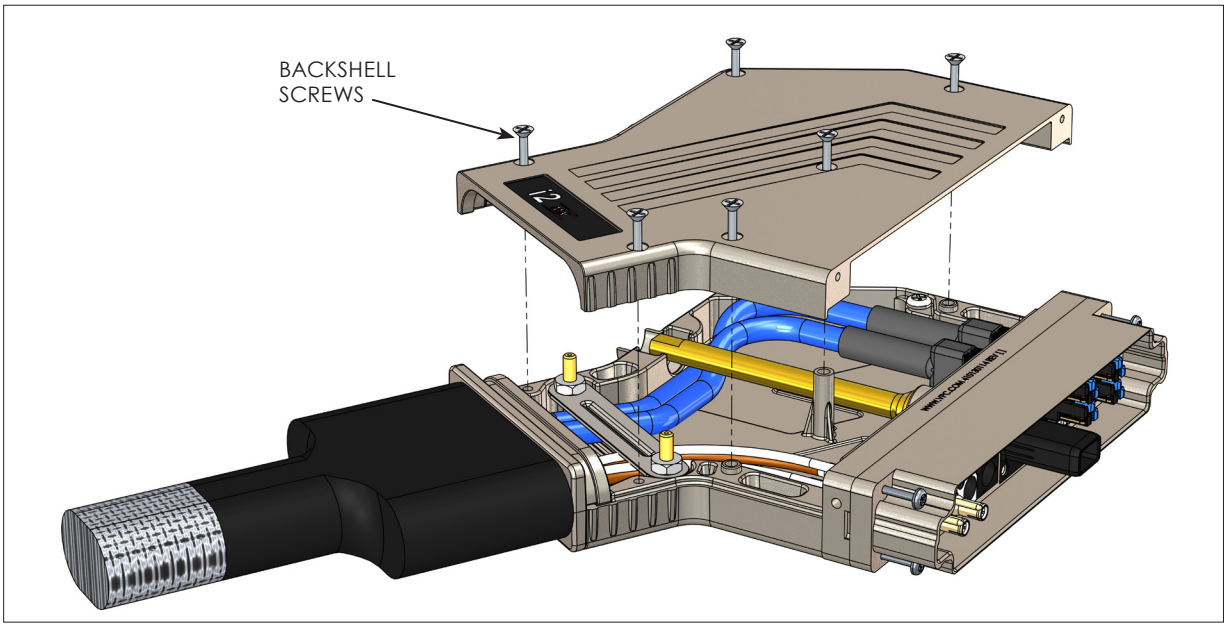

Figure C. i2 MX backshell cover removal.

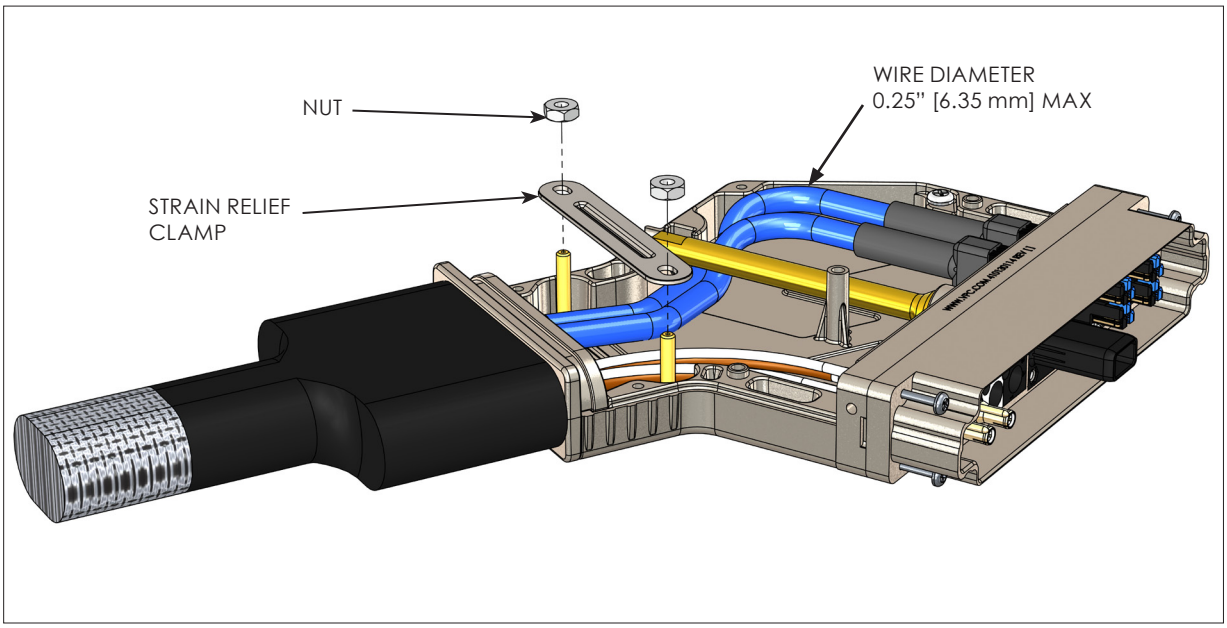

Figure D. i2 MX strain relief clamp removal.

i2 MX ITA CABLE ASSEMBLY AND BACKSHELL INSTALLATION INSTRUCTIONS

PART # 410 130 XXX

TOOLS REQUIRED

Phillips Head Screwdriver
1/4" Nut Driver, hollow shaft
Banding Tool, Part # 910 121 202
1/8" band(s)
Dull Needle
Wax Lacing Tape
Silcone Tape
Sleeving
Scissors

INSTALLATION INSTRUCTIONS

1. Plug Patchcords/contacts into module (**Figure A**).

2. Assemble first half of backshell on ITA frame by securing captive screws through bottom of frame into backshell (**Figure B**). Torque screws to 2 in-lbs [0.23 Nm].

3. Build up cable bundle diameter with silicone tape as necessary. Flex wire bundle forward to create small service loop. Secure bundle by tightening strain relief clamp (**Figure C**).

FORMULA TO CALCULATE THE MAXIMUM NUMBER OF WIRES IN A CABLE BUNDLE

$$B = 1.2\ \sqrt{(N_1 d_1^2 + N_2 d_2^2 \ldots + N_n d_n^2)}$$

B = Wire Bundle Diameter	N_1 = Quantity of first wire type	d_1 = Outside Diameter of first wire type
	N_2 = Quantity of second wire type	d_2 = Outside Diameter of second wire type
	N_n = Quantity of n^{th} wire type	d_n = Outside Diameter of n^{th} wire type

WIRE TYPE	Ø in. [mm]	# WIRES	BUNDLE Ø in. [mm]
26AWG 16878/4	0.043 [1.09 mm]	375	1.0 [25.4 mm]
24AWG 16878/4	0.048 [1.22 mm]	301	1.0 [25.4 mm]
22AWG 16878/4	0.054 [1.37 mm]	238	1.0 [25.4 mm]
M27500-26ml2t08	0.114 [2.90 mm]	53	1.0 [25.4 mm]
M27500-24ml2t08	0.126 [3.20 mm]	43	1.0 [25.4 mm]
M27500-22ml2t08	0.140 [3.56 mm]	35	1.0 [25.4 mm]
M27500-22ml1t08	0.087 [2.21 mm]	91	1.0 [25.4 mm]
22AWG 16878/4 T/P	0.108 [2.74 mm]	59	1.0 [25.4 mm]
24AWG 16878/4 T/P	0.096 [2.44 mm]	75	1.0 [25.4 mm]

NOTE: Acceptable bundle dimension must be reduced when using sleeving and shrink tubing.

NOTE: Wire diameter should be less than 0.25" [6.35 mm].

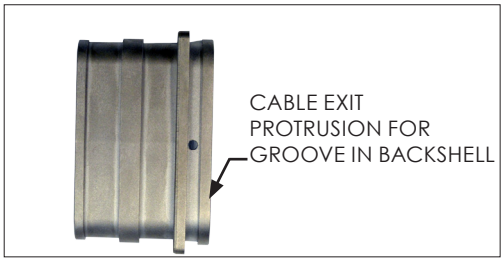

Figure D. Cable exit protrusion.

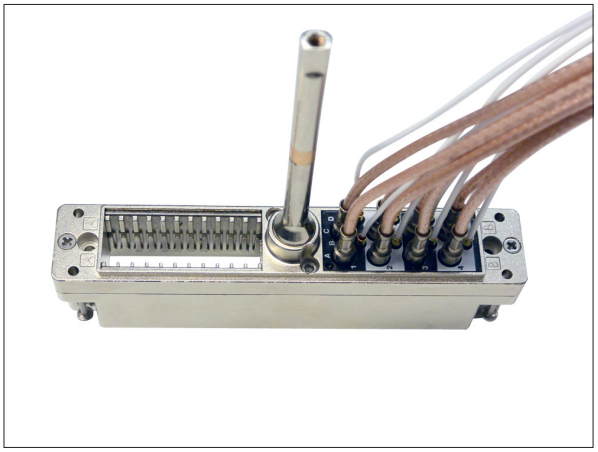

Figure A. Plug patchcords.

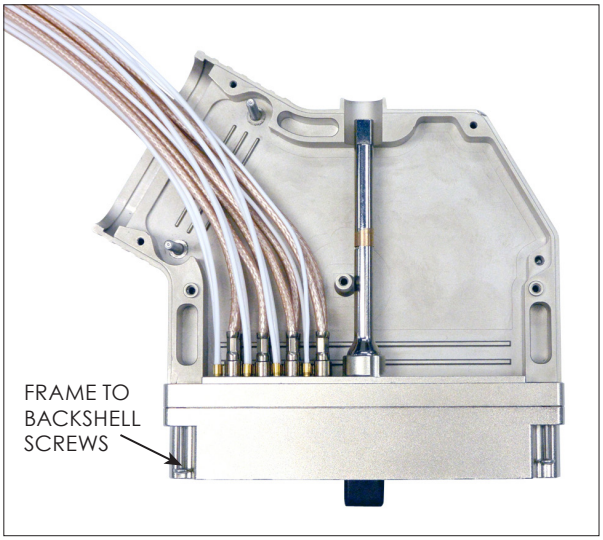

Figure B. Assemble first half of backshell.

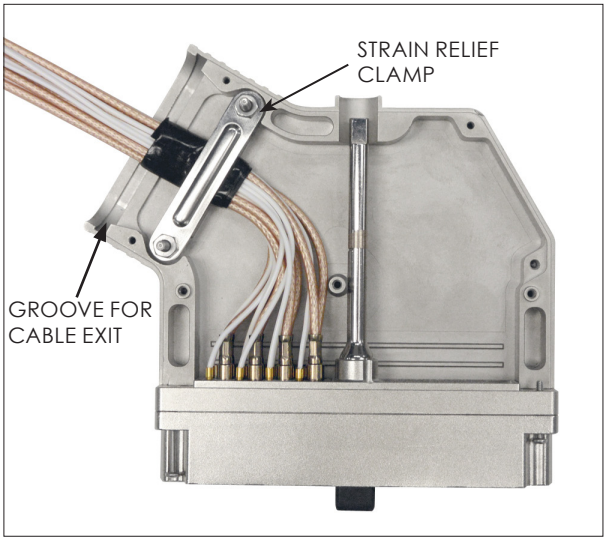

Figure C. Silicone tape and secure.

i2 MX ITA CABLE ASSEMBLY AND BACKSHELL INSTALLATION INSTRUCTIONS

PART # 410 130 XXX

INSTALLATION INSTRUCTIONS (CONTINUED)

4. Capture cable exit in grooves of backshell (**Figure C, D, Section 5-1**). Place other half of backshell on ITA frame and secure with remaining two (2)pan head captive screws. Secure the six (6) flat head captive screws that hold the backshell together. Torque screws to 2 in-lbs [0.23 Nm]. Add engagement handle and screw (**Figure E**).

NOTE: ITA Cable Assembly build up should be no more than 0.800" width for mounting on 0.800" centers.

5. Slide the metal EMI braid up to first lip of cable clamp area and secure the band with Banding Tool. Trim the metal braid back even with lip if necessary. (**Figure F & G**).

NOTE: For detailed instructions of Banding Tool use, refer to the Banding Tool, Part # 910 121 202, Procedure Sheet.

6. Secure loose end of metal EMI braid with fiberglass tape to keep EMI braid from protruding through heat shrink tubing (**Figure H**).

7. Slide sleeving up to wire exit end of cable clamp and secure with several passes of lacing tape woven through sleeving and metal braid. Slide heat shrink tubing up to front flange of cable clamp and shrink in place (**Figure I & J**).

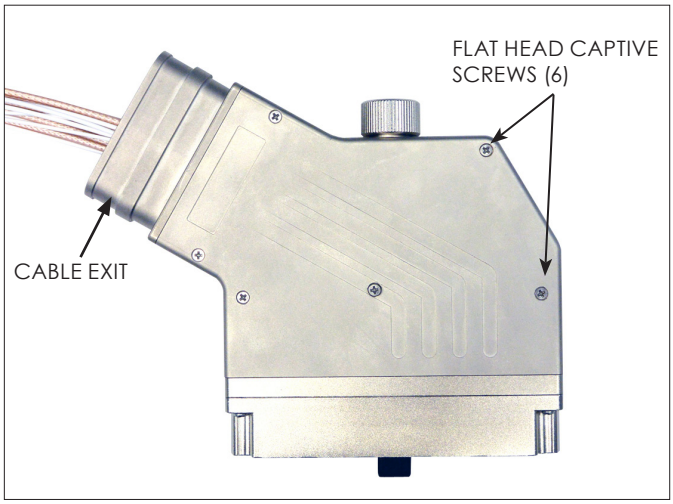

Figure E. Install Second half of backshell.

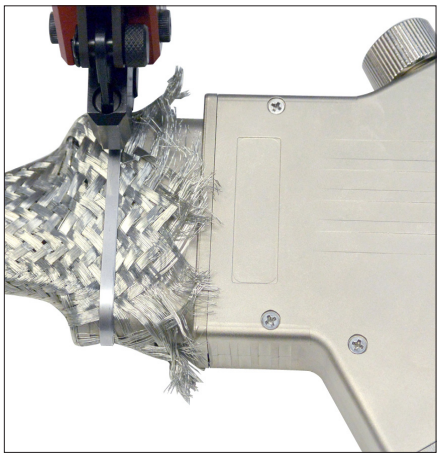

Figure F. EMI braid.

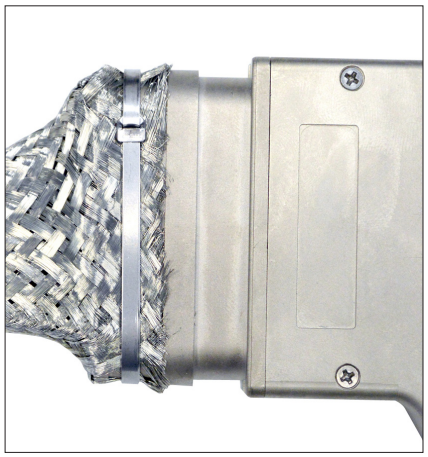

Figure G. EMI braid with band.

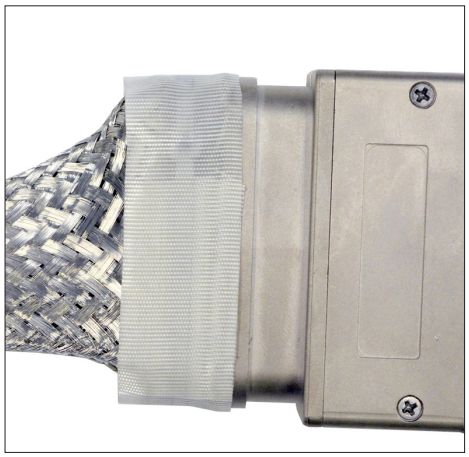

Figure H. Fiberglass tape.

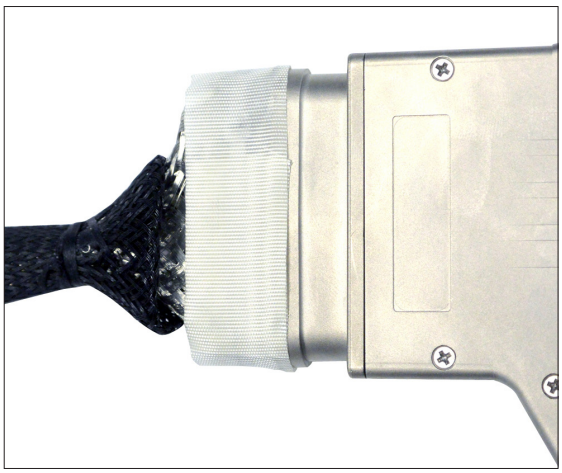

Figure I. Sleeving.

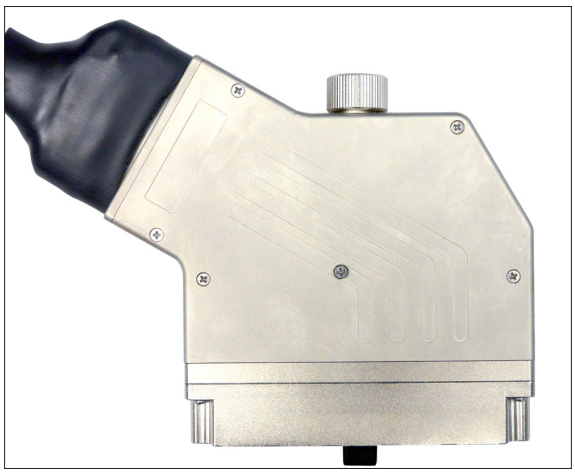

Figure J. Shrink tubing.

i2 MX CONTACT REMOVAL

PART # 310 130 XXX, 410 130 XXX

TOOLS REQUIRED

Phillips Head Screwdriver

RECEIVER INSTRUCTIONS

1. Remove strain relief or keying pins (**Section 8**) if needed.

2. If mounted to a panel, using a Phillips head screwdriver, remove receiver from panel (**Figure A**).

NOTE: For VTAC HSD Patchcords skip steps 3, 4 and 5. Extract VTAC HSD Patchcords per the VTAC HSD User's Manual.

3. Using the Phillips head screwdriver, remove the two flat head assembly screws from the back of the receiver (**Figure A**).

4. Separate receiver frame halves.

5. Separate module insert halves.

NOTE: Install/Extract QuadraPaddle contacts per the QuadraPaddle User's Manual. Reference contact Part # 610 138 200 or contact Part # 610 138 216. Install/Extract TriPaddle contacts, per TriPaddle User's Manual. Reference contact Part # 610 110 101.

NOTE: Install/Extract Micro Power contacts per the Micro Power User's Manual. Reference contact Part # 610 142 101. Install/Extract Micro Coaxial contacts per the Micro Coaxial User's Manual. Reference contact Part # 610 140 XXX.

NOTE: Install/Extract Mini Power contacts per the Mini Power User's Manual. Reference contact Part # 610 116 112. Install/Extract Mini Coaxial contacts per the Mini Coaxial User's Manual. Reference contact Part # 610 104 XXX.

ITA INSTRUCTIONS

1. Refer to **Section 4** of this User's Manual for ITA Cover Removal Instructions.

NOTE: Install/Extract QuadraPaddle contacts per the QuadraPaddle User's Manual. Reference contact Part # 610 138 109 or 610 138 112. Install/Extract TriPaddle contacts, per TriPaddle User's Manual. Reference Part # 610 110 108.

NOTE: Install/Extract Micro Power contacts per the Micro Power User's Manual. Reference contact Part # 610 143 101. Install/Extract Micro Coaxial contacts per the Micro Coaxial User's Manual. Reference contact Part # 610 141 XXX.

NOTE: Install/Extract Mini Power contacts per the Mini Power User's Manual. Reference contact Part # 610 115 124. Install/Extract Mini Coaxial contacts per the Mini Coaxial User's Manual. Reference contact Part # 610 103 XXX.

NOTE: Install/Extract VTAC HSD Patchcords per the VTAC HSD User's Manual.

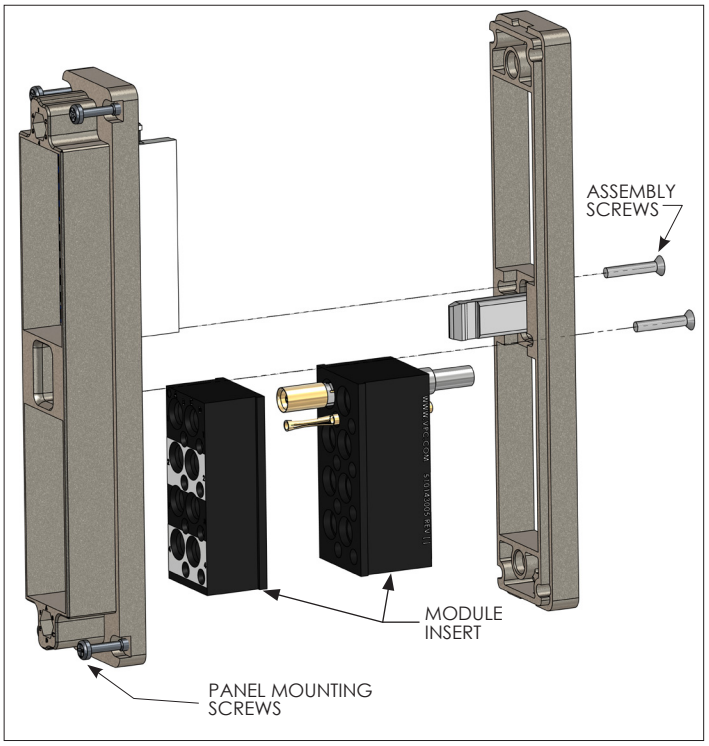

Figure A. i2 MX receiver separation.

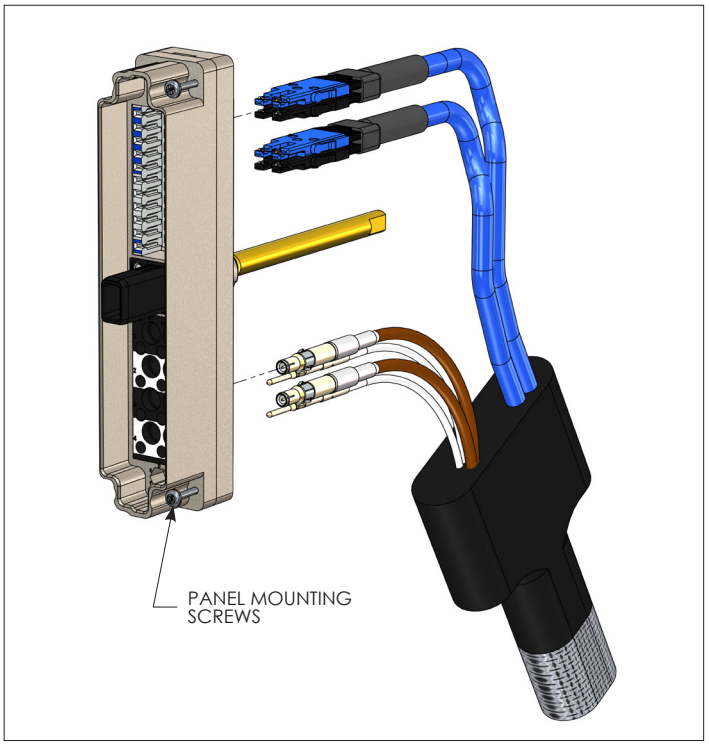

Figure B. i2 MX ITA contact extraction.

i2 MX MODULE INSERT(S) INSTALLATION/REMOVAL

PART # 310 130 XXX AND 410 130 XXX

TOOLS REQUIRED

Phillips Head Screwdriver

i2 MX MODULE INSERT(S) REMOVAL INSTRUCTIONS

1. If working with a receiver, use a Phillips head screwdriver to remove strain relief by removing screws (**Figure A**).

   The ITA will require removal of backshell first see **Section 4** of this User's Manual.

2. Using a Phillips head screwdriver, remove the two Phillips flat head screws that are holding the frame halves together.

   For ITA use a Phillips head screwdriver to loosen the two captive screws on the back of rear frame (**Figure B**).

3. Pull halves apart.

4. Remove module insert(s).

i2 MX MODULE INSERT(S) INSTALLATION INSTRUCTIONS

1. For installing module insert(s), orient insert(s) as shown in (**Figure A**) and (**Figure C**). Place insert(s) ledge on flat surface shown in (**Figure D**), then put halves together and tighten with flat head screws using a Phillips head screwdriver.

NOTE: Receiver/ITA frame halves are keyed to be placed together only one direction.

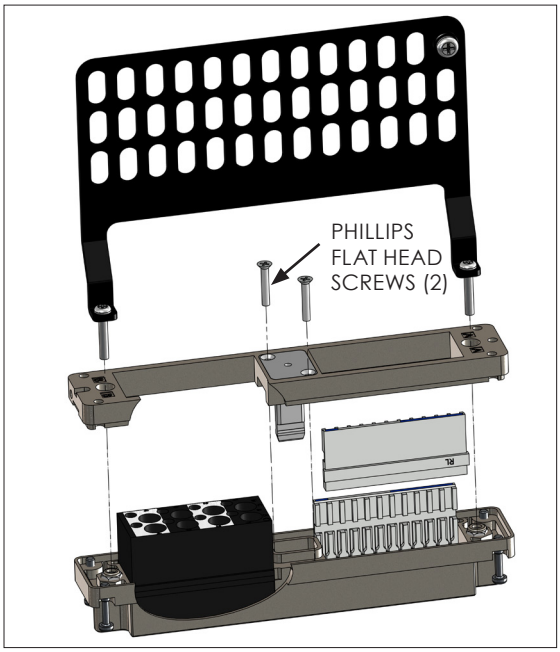

Figure A. Module insert install and removal (receiver shown).

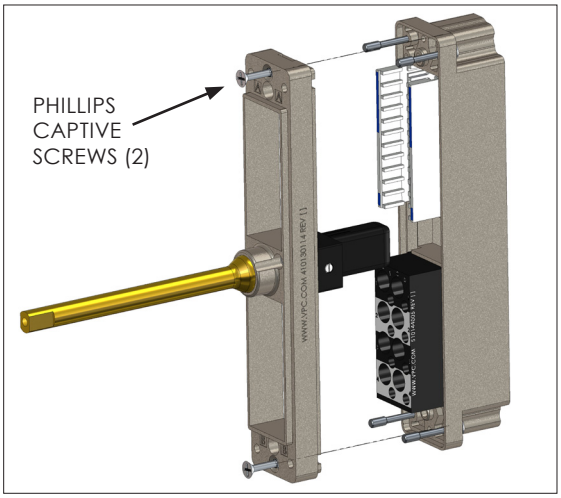

Figure B. ITA frame separation.

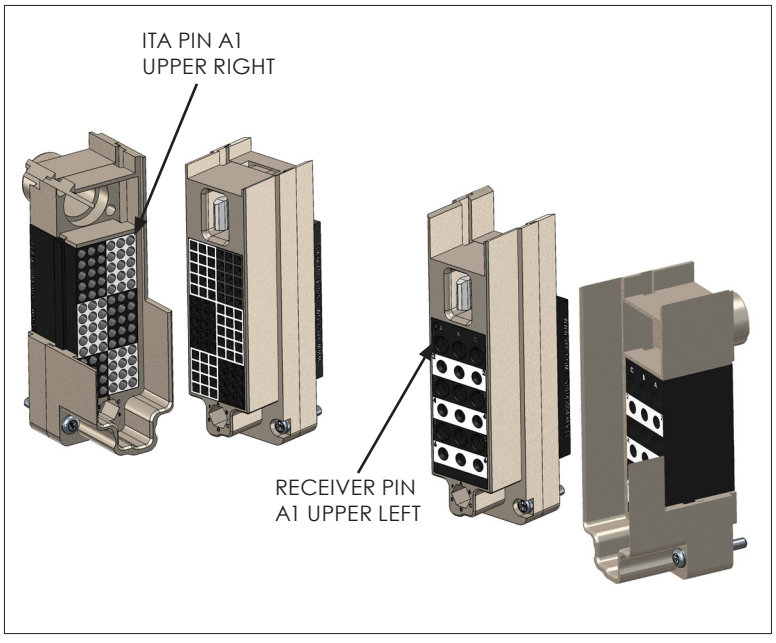

Figure C. Module insert install and removal (receiver shown).

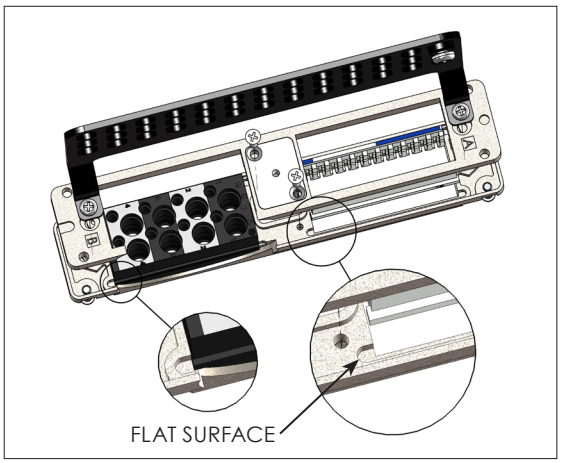

Figure D. Module insert install and removal (receiver shown).

VTAC HSD RAIL(S) INSTALLATION/REMOVAL INSTRUCTIONS

PART # 310 130 XXX AND 410 130 XXX

TOOLS REQUIRED

Phillips Head Screwdriver

VTAC HSD RAIL(S) REMOVAL INSTRUCTIONS

1. If working with a receiver, use a Phillips head screwdriver to remove strain relief by removing screws (**Figure A**).

   The ITA will require removal of backshell first. See **Section 2** of this User's Manual for instructions.

2. After removing strain relief/backshell, use a Phillips head screwdriver to remove the two Phillips flat head screws that are holding the frame halves together (**Figure A**).

   For ITA use Phillips head screwdriver to loosen the two captive screws on the back of the rear frame (**Figure B**).

3. Pull halves apart.

4. Remove VTAC HSD Rail(s).

VTAC HSD RAIL(S) INSTALLATION INSTRUCTIONS

1. To install VTAC HSD Rail(s), orient rail(s) as shown in (**Figure A**). **Figure C** illustrates the identifiers to aid in orientation (receiver rails shown). The receiver rails are marked with 'RR' (receiver right) and 'RL' (receiver left) when viewing from mating face. The ITA rails are marked with 'IR' (ITA right) and 'IL' (ITA left) when viewing from rear/wiring side.

2. Place rail(s) ledge on flat surface shown in (**Figure D**), then put halves together and tighten the two Phillips flat head screws using a Phillips head screwdriver.

NOTE: Receiver/ITA frame halves are keyed to be placed together only one direction.

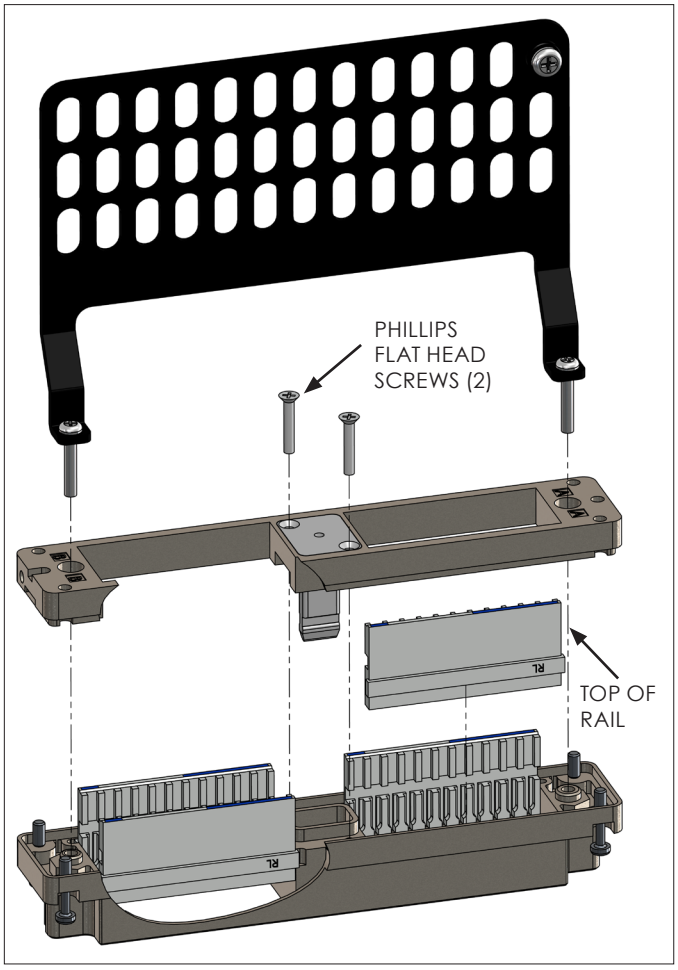

Figure A. VTAC HSD Rail(s) install/removal (receiver shown).

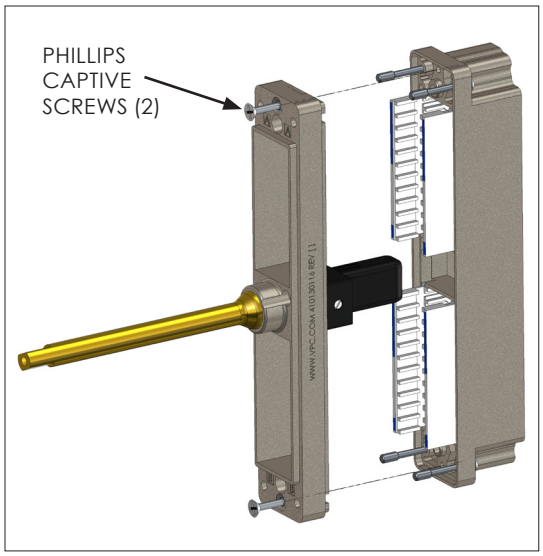

Figure B. ITA frame separation.

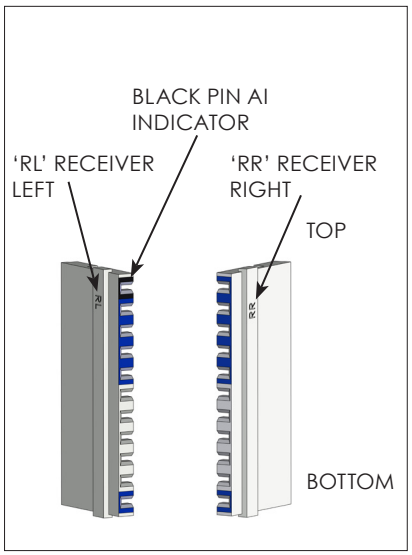

Figure C. VTAC HSD Rail(s) - Identifiers.

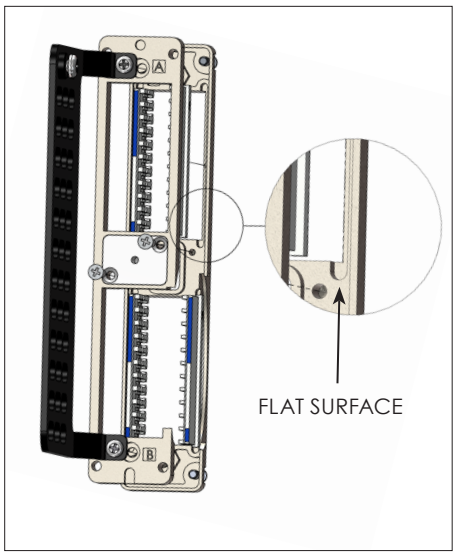

Figure D. VTAC HSD Rail(s) install/removal (receiver shown).

i2 MX ACCESSORIES • RECEIVER STRAIN RELIEF ASSEMBLY

PART # 310 113 681

TOOLS REQUIRED
Phillips Head Screwdriver

ASSEMBLY INSTRUCTIONS

1. Using the Phillips head screwdriver, fasten the strain relief to the back (wiring) side of the i2 MX receiver with the 2-56 screws and nuts provided (**Figure A**). Place the nuts in the keying positions from the front side of the receiver.

*NOTE: If using the keying features, replace the 2-56 nuts with the keying pins (**Figure B**).*

2. Torque screws to 2 in-lbs [0.23 Nm].

NOTE: Four wiring ties are included with the strain relief for restraining wires.

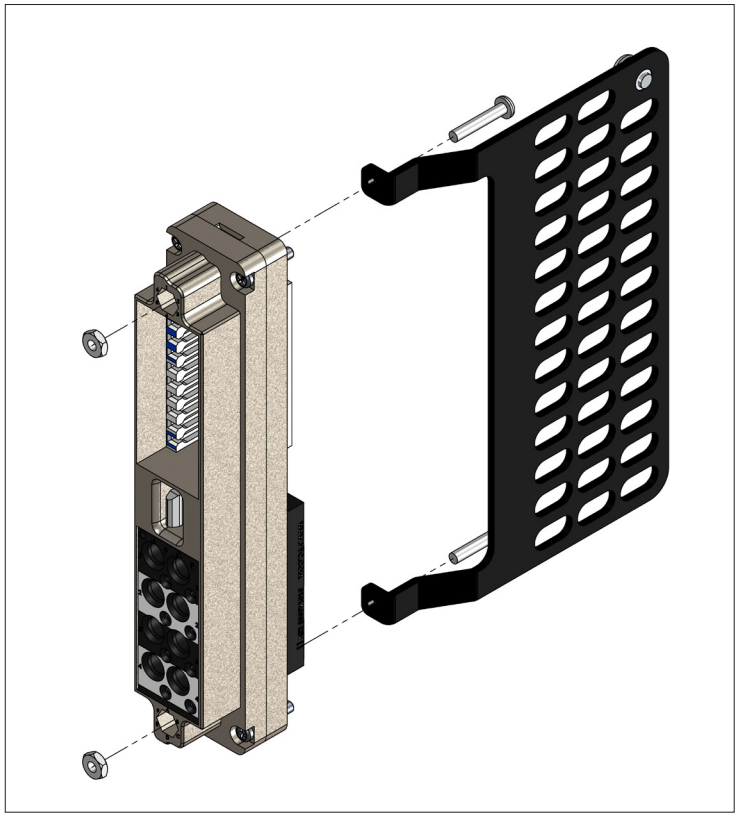

Figure A. i2 MX receiver strain relief.

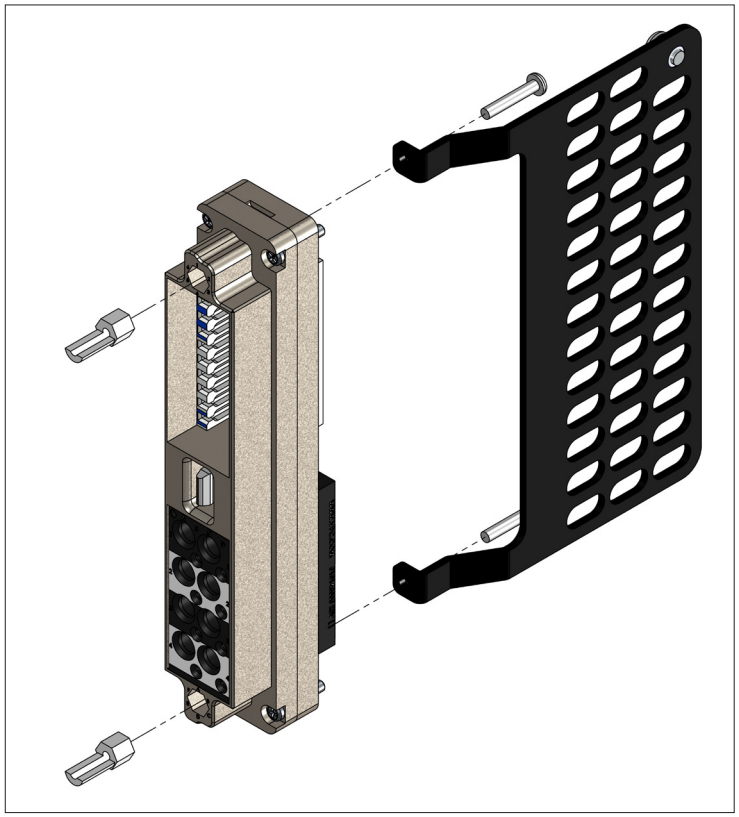

Figure B. i2 MX receiver strain relief with keying pins.

i2 MX ACCESSORIES • PROTECTIVE COVER

PART # 310 113 569, 310 113 667, AND 410 112 924

INSTALLATION AND REMOVAL INSTRUCTIONS

1. Press the cover onto the receiver or ITA until cover is held firmly in place (**Figure B**).

2. To remove, grasp rubber tab of cover and pull backwards with even force (**Figure C**).

   For EMI receiver protective cover grasp handle and pull backwards (**Figure D**).

3. Secure beaded chain lanyard to receiver or ITA on the bottom of frame with 4-40 screw (**Figure D**). Torque screw to 4 in-lbs [0.45 Nm].

NOTE: Max temperature for protective cover is 40 C°

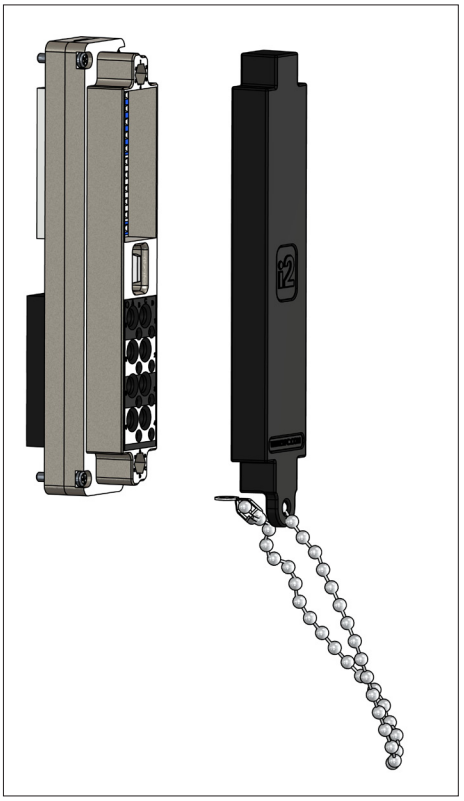

Figure A. i2 MX receiver protective cover.

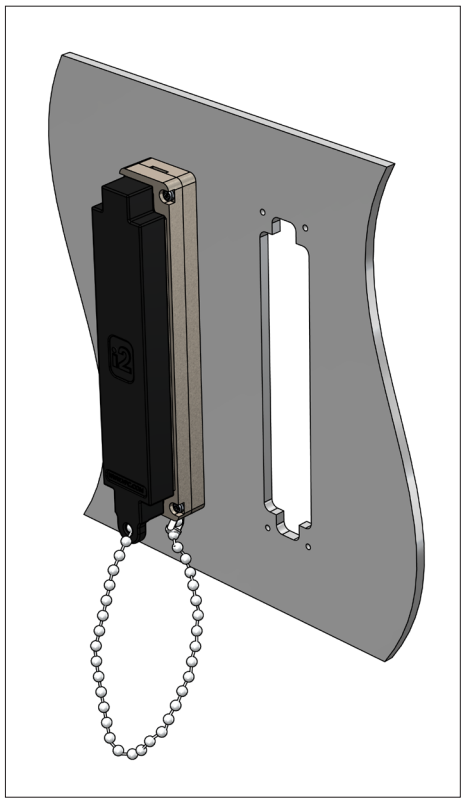

Figure B. i2 MX receiver protective cover installed.

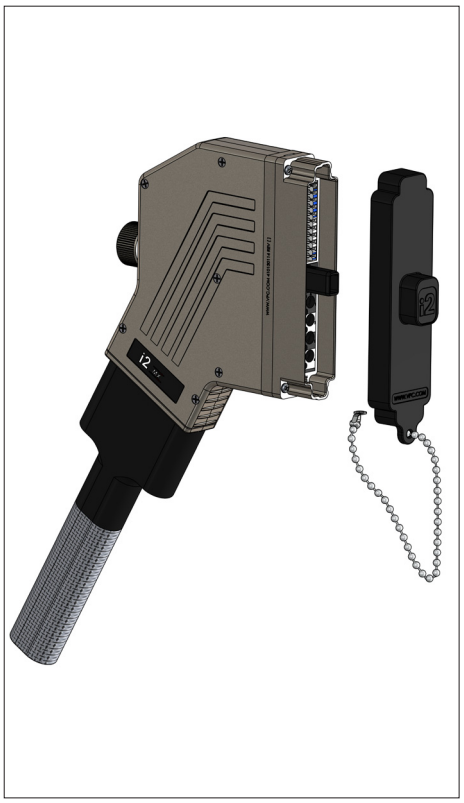

Figure C. i2 MX ITA protective cover.

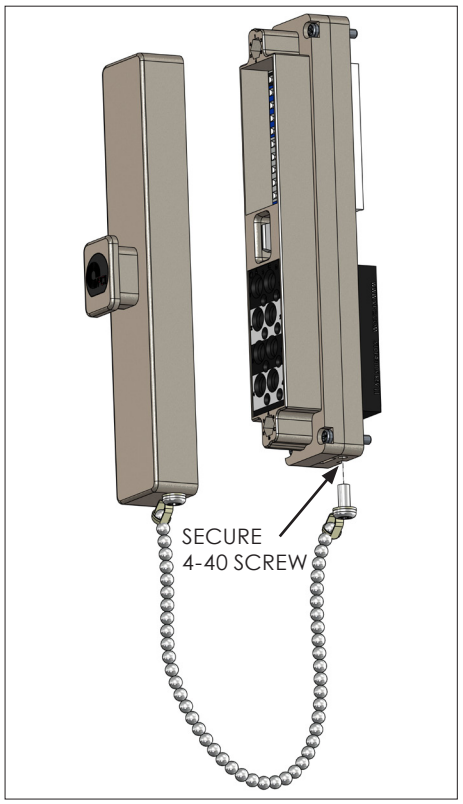

Figure D. i2 MX EMI receiver protective cover.

i2 MX ACCESSORIES • KEYING PIN KIT, RECEIVER AND ITA ASSEMBLY

PART # 310 113 461

The iSeries keying kit includes two pins and screws which provide six different keying options. The i2 MX system is designed to accept two kits which increase the keying options to 36.

TOOLS REQUIRED
Phillips Head Screwdriver

ASSEMBLY INSTRUCTIONS

1. Determine the keying pin's desired orientation (**Figure A**).

2. Using a Phillips head screwdriver, secure a keying pin in the i2 MX receiver with the 2-56 screws provided with the keying pin kit (**Figure B**). Torque screws to 2 in-lbs [0.23 Nm].

NOTE: If the strain relief plate, Part # 310 113 681, is being used, replace the screws used to secure the keying pins with the screws included with the strain relief plate.

3. Remove the ITA cover (see Section 4).

4. Using a Phillips head screwdriver, secure a keying pin in the i2 MX ITA with the 2-56 screws provided (**Figure C**). Torque screws to 2 in-lbs [0.23 Nm].

5. Replace the i2 MX ITA cover (see **Section 4**).

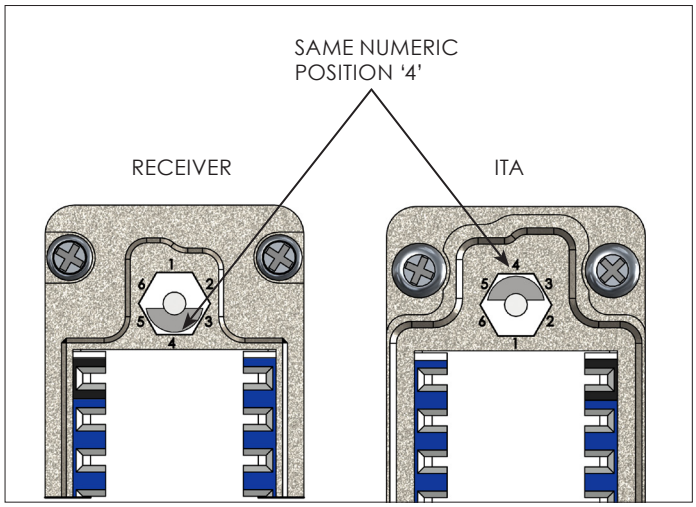

Figure A. i2 MX receiver and ITA mating faces. In order to mate the connector, the keying pin must be in the same numeric position in both the receiver and ITA.

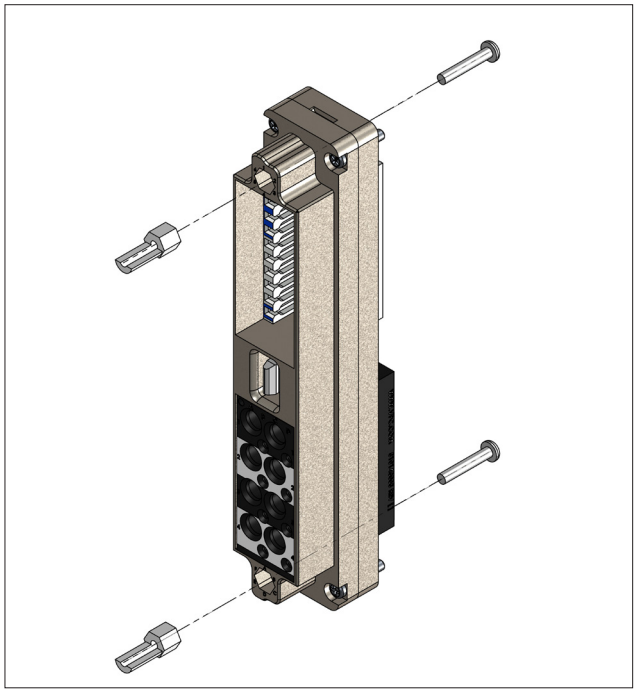

Figure B. i2 MX receiver with keying pins.

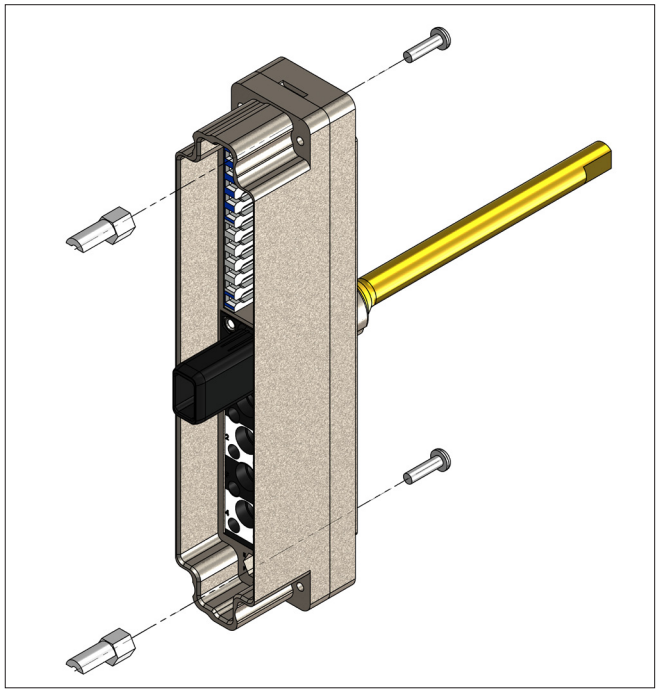

Figure C. i2 MX ITA with keying pins.

TROUBLESHOOTING

ITA frame is not lined up when in the process of engagement with receiver

This may indicate that the ITA is out of alignment or that a module is not mating with its intended mate.

- Remove and inspect the ITA for alignment.
- Check for foreign objects/tools.
- Inspect the matching of modules - Signal ITA Module to mate with Signal Receiver Module, etc.
- The keying pin locations do not mate.

Forceful engagement of the Receiver and the ITA will result in serious damage to multiple parts of the system (modules, receiver, ITA and contacts)!